

In the Claims:

Claims 1 - 21 (cancelled).

Claim 22. (currently amended) A system for verifying the authenticity of an object comprising:

~~a~~ an optical signal source;

~~a first subsystem receiving a first signal from the signal source and providing as output therefrom a first output signal~~

a first beam expander for expanding a first signal received from the optical signal source;

a first collimating lens for collimating the first signal;

a primary image disposed within the path of the first signal;

a first transforming lens disposed within the path of the first signal;

a filter matched to a random code is disposed within the path of the first signal;

an imaging arrangement for imaging a first image comprising a convolution of the primary image and the random code;

~~a second subsystem receiving a second signal from the signal source and providing as output therefrom a second output signal~~

a second beam expander for expanding a second signal received from the optical signal source;

a second collimating lens for collimating the second signal;

a beam splitter for receiving the collimated second signal and a reference signal from a reference image to provide a second image;

a second transforming lens disposed within the path of the second image;

~~a third subsystem receiving the first and second output signals for comparing the first output signal with the second output signal~~

a beam combiner for combining the first and second images;

a detector for recording the combined first and second images generating thereby a joint power spectrum; and

a correlator in communication with the detector for generating a correlation signal from the joint power spectrum, the correlation being indicative of a correlation of the primary image and the reference image.

Claims 23 – 26 (cancelled).

Claim 27. (currently amended) The system for verifying the authenticity of an object as set forth in Claim ~~23-22~~ wherein the optical source is a source of coherent light.

Claim 28. (currently amended) The system for verifying the authenticity of an object as set forth in Claim 27 wherein the source of coherent light comprises a laser operative to provide a laser beam to form the first and second ~~subsystem~~signals.

Claims 29 – 31 (cancelled).

Claim 32. (currently amended) The system for verifying the authenticity of an object as set forth in Claim ~~31-22~~ wherein the detector comprises a charge coupled device.

Claim 33. (currently amended) The system for verifying the authenticity of an object as set forth in Claim ~~31-22~~ wherein the ~~comparator~~correlator comprises:

a nonlinear transfer function generator for applying a k -th power law nonlinear transformation to the joint power spectrum; and

a transforming system in signal communication with the nonlinear transfer function generator for performing the correlation of the joint power spectrum that has been nonlinearly transformed~~joint power spectrum~~; and

a system for analyzing the peaks of the correlation of the joint power spectrum that has been nonlinearly transformed~~joint power spectrum~~.

Claims 34 - 83 (withdrawn).

Claim 84. (new) The system for verifying the authenticity of an object as set forth in Claim 22 wherein the imaging arrangement comprises imaging lenses.

Claim 85. (new) The system for verifying the authenticity of an object as set forth in Claim 22 wherein the filter comprises a spatial filter.